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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/718,694	OOSAWA, AKIRA	
	Examiner	Art Unit	
	AKLILU k. WOLDEMARIAM	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 November 2008* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/24/2003, 03/05/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Amendment

1. Applicant's amendment field on 08/15/2008 has been entered. Claims 1-25 are still pending with claims 1, 7, 13, 17 and 22 being an independent.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. *Claims 1, 4-7, 10-13, 15-17, 19-22 and 25 are rejected under 35 U.S.C. 102(b) as* being anticipated by *Kano (Akiko Kano, Kunio Doi, Heber MacMahon, Dayne D.Hasseell, and Maryellen L.Giger, Digital image subtraction of temporally sequential chest images for detection of interval change, Mediacla physics, Vo1.21, No.3, March 1994).*

Regarding claim 1, *Kano discloses* an image processing apparatus equipped with an inter image calculating means for performing inter image calculations to derive differences between two images of a single subject to obtain a difference image that represents the differences between the two images *(page 454, column 1 and page 456, column 1-column 2, a previous chest image may be assumed no distorted and is expressed by (x, y). Then the pixel value at (x+Δx, y+Δy) on the current image corresponds to the pixel value at (x, y) on the previous image. The "warping" (or rewarping) of the current image is required for subtraction with the previous image (details of coordinate transformation in appendix) and a subtraction image is obtained*

by the difference between the wrapped current image and the previous image and figure 5(a)-5(d) illustrate a pair of original chest images without significant interval change, the warped image and the resulting subtraction image),

wherein: process confirmation data representing whether an image has undergone image processes is attached to each of the two images *(page 454, column 2, as applied preprocessing. With this technique, the "proper density distributions can be recovered from improperly exposed radiographs, and thus consistent density and contrast in temporally sequential chest images can be maintained. An exposure correction factor is estimated based on histogram analysis of a chest image),* and image processing condition data representing image processing conditions are further attached to the images which have undergone image processes *(page 454, column 2, as applied preprocessing. With this technique, the "proper density distributions can be recovered from improperly exposed radiographs, and thus consistent density and contrast in temporally sequential chest images can be maintained. An exposure correction factor is estimated based on histogram analysis of a chest image);* the image processing apparatus further comprising:

a judgment means for judging whether the two images have undergone image processes, based on the process confirmation data attached to each of the two images *(page 454, column 2, as applied preprocessing. With this technique, the "proper density distributions can be recovered from improperly exposed radiographs, and thus consistent density and contrast in temporally sequential chest images can be*

maintained. An exposure correction factor is estimated based on histogram analysis of a chest image); and

a correction means for correcting an image which has been judged to have undergone image processes, to correct the image to a state equivalent to its original state prior to the image processes, based on the image processing condition data attached thereto *(page 454, column 2, a nonlinear density correction is performed in order to adjust the density and contrast in the two digitized images); wherein: the inter image calculation means performs the inter image calculation employing the corrected image, for the image which has been judged to have undergone image processes (see page 456, column 1-column 2, a subtraction image is obtained by the difference between the wrapped current image and the previous image and figure 5(a)-5(d) illustrate a pair of original chest images without significant interval change, the warped image and the resulting subtraction image).*

Regarding claim 4, *Kano discloses* an image processing apparatus as defined in claim 1, further comprising:

a positional alignment means for aligning the positions of the two images so that structural components of the single subject substantially match *(see page 458, column 2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows); wherein the inter image calculation means performs the inter image calculation between the two images which have been positionally aligned (see page 459, column 2, It should be noted that misregistrations caused by large amount of difference in x-ray projections,*

such as severe AP inclination or rotation, could not be completely accommodated with the method. Developments to devices which can make patient positioning more reproducible are highly desirable in order to take advantage of the digital image subtraction technique).

Regarding claim 5, *Kano discloses* an image processing apparatus as defined in claim 2, further comprising: a positional alignment means for aligning the positions of the two images so that structural components of the single subject substantially match *(see page 458, column 2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows);*

wherein the inter image calculation means performs the inter image calculation between the two images which have been positionally aligned *(see page 459, column 2, It should be noted that misregistrations caused by large amount of difference in x-ray projections, such as severe AP inclination or rotation, could not be completely accommodated with the method. Developments to devices which can make patient positioning more reproducible are highly desirable in order to take advantage of the digital image subtraction technique).*

Regarding claim 6, *Kano discloses* an image processing apparatus as defined in claim 3, further comprising:

a positional alignment means for aligning the positions of the two images so that structural components of the single subject substantially match *(see page 458, column*

2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows);

wherein the inter image calculation means performs the inter image calculation between the two images which have been positionally aligned *(see page 459, column 2, It should be noted that misregistrations caused by large amount of difference in x-ray projections, such as severe AP inclination or rotation, could not be completely accommodated with the method. Developments to devices which can make patient positioning more reproducible are highly desirable in order to take advantage of the digital image subtraction technique).*

Regarding claim 7, *Kano discloses* an image processing apparatus equipped with an inter image calculating means for performing inter image calculations to derive differences between two images of a single subject to obtain a difference image that represents the differences between the two images (*see page 456, column 1-column 2, a subtraction image is obtained by the difference between the wrapped current image and the previous image and figure 5(a)-5(d) illustrate a pair of original chest images without significant interval change, the warped image and the resulting subtraction image),* wherein:

process confirmation data representing whether an image has undergone image processes is attached to each of the two images *(see page 454, column 2, a nonlinear density correction technique based on the H and D curve of the original radiographic films is applied a preprocessing);*

the image processing apparatus further comprising: a judgment means for judging whether the two images have undergone image processes, based on the process confirmation data attached to each of the two images (*see page 456, column 2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows. Approximately, 70% (32) of all the cases examined showed "reasonably" good matchings, indicating no apparent mismatch for normal anatomic structures);* and

a correction means for correcting an image which has been judged to have undergone image processes, to cause the image to approximate its original state prior to the image processes, based on typical image processing conditions of image processes which have been administered to the image *(page 454, column 2, a nonlinear density correction is performed in order to adjust the density and contrast in the two digitized images);*

wherein: the inter image calculation means performs the inter image calculation employing the corrected image, for the image which has been judged to have undergone image processes *(see page 456, column 1-column 2, a subtraction image is obtained by the difference between the wrapped current image and the previous image and figure 5(a)-5(d) illustrate a pair of original chest images without significant interval change, the warped image and the resulting subtraction image).*

Regarding claim 10, *Kano discloses* an image processing apparatus as defined in claim 7, further comprising: a positional alignment means for aligning the positions of the two images so that structural components of the single subject

substantially match *(see page 458, column 2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows);*

wherein the inter image calculation means performs the inter image calculation between the two images which have been positionally aligned *(see page 459, column 2, It should be noted that misregistrations caused by large amount of difference in x-ray projections, such as severe AP inclination or rotation, could not be completely accommodated with the method. Developments to devices which can make patient positioning more reproducible are highly desirable in order to take advantage of the digital image subtraction technique).*

Regarding claim 11, *Kano discloses* an image processing apparatus as defined in claim 8, further comprising: a positional alignment means for aligning the positions of the two images so that structural components of the single subject substantially match (*see page 458, column 2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows); wherein the inter image calculation means performs the inter image calculation between the two images which have been positionally aligned (see page 459, column 2, It should be noted that misregistrations caused by large amount of difference in x-ray projections, such as severe AP inclination or rotation, could not be completely accommodated with the method. Developments to devices which can make patient positioning more reproducible are highly desirable in order to take advantage of the digital image subtraction technique).*

Regarding claim 12, *Kano discloses* an image processing apparatus as defined in claim 9, further comprising: a positional alignment means for aligning the positions of the two images so that structural components of the single subject substantially match *(see page 458, column 2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows); wherein the inter image calculation means performs the inter image calculation between the two images which have been positionally aligned (see page 459, column 2, It should be noted that misregistrations caused by large amount of difference in x-ray projections, such as severe AP inclination or rotation, could not be completely accommodated with the method. Developments to devices which can make patient positioning more reproducible are highly desirable in order to take advantage of the digital image subtraction technique).*

Regarding claim 13, *Kano discloses* an image processing apparatus equipped with an inter image calculating means for performing inter image calculations to derive differences between two images of a single subject to obtain a difference image that represents the differences between the two images *(see page 454, column 1 and page 456, column 1-column 2, a previous chest image may be assumed nondistorted and is expressed by (x, y). Then the pixel value at (x+Δx, y+Δy) on the current image corresponds to the pixel value at (x, y) on the previous image. The "warping" (or rewrapping) of the current image is required for subtraction with the previous image (details of coordinate transformation in appendix) and a subtraction image is obtained by the difference between the wrapped current image and the previous image and*

figure 5(a)-5(d) illustrate a pair of original chest images without significant interval change, the warped image and the resulting subtraction image),

wherein: process confirmation data representing whether an image has undergone image processes is attached to each of the two images *(see page 454, column 2, a nonlinear density correction technique based on the H and D curve of the original radiographic films is applied a preprocessing)*, and

image processing condition data representing image processing conditions are further attached to the images which have undergone image processes *(see page 454, column 2, a nonlinear density correction technique based on the H and D curve of the original radiographic films is applied a preprocessing);*

the image processing apparatus further comprising: a judgment means for judging whether the two images have undergone image processes, based on the process confirmation data attached to each of the two images *(see page 456, column 2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows. Approximately, 70% (32) of all the cases examined showed "reasonably" good matching, indicating no apparent mismatch for normal anatomic structures);* and

a correction means for correcting the difference image to be obtained by the inter image calculation in the case that at least one of the two images have undergone image processes, to obtain a difference image which would be obtained if the inter image calculation was performed employing the two images prior to the image processes, based on the image processing condition data attached thereto (*see page 454, column*

1 and page 456, column 1-column 2, a previous chest image may be assumed nondistorted and is expressed by (x,y). Then the pixel value at (x+Δx, y+Δy) on the current image corresponds to the pixel value at (x, y) on the previous image. The "warping" (or rewrapping) of the current image is required for subtraction with the previous image (details of coordinate transformation in appendix) and *a subtraction image is obtained by the difference between the wrapped current image and the previous image and figure 5(a)-5(d) illustrate a pair of original chest images without significant interval change, the warped image and the resulting subtraction image).*

Regarding claim 15, *Kano discloses* an image processing apparatus as defined in claim 13, further comprising:

a positional alignment means for aligning the positions of the two images so that structural components of the single subject substantially match *(see page 458, column 2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows);*

wherein the inter image calculation means performs the inter image calculation between the two images which have been positionally aligned *(see page 454, column 1 and page 456, column 1-column 2, a previous chest image may be assumed nondistorted and is expressed by (x, y). Then the pixel value at (x+Δx, y+Δy) on the current image corresponds to the pixel value at (x, y) on the previous image. The "warping" (or rewrapping) of the current image is required for subtraction with the previous image (details of coordinate transformation in appendix) and a subtraction image is obtained by the difference between the wrapped current image and the*

previous image and figure 5(a)-5(d) illustrate a pair of original chest images without significant interval change, the warped image and the resulting subtraction image).

Regarding claim 16, *Kano discloses* an image processing apparatus as defined in claim 14, further comprising:

a positional alignment means for aligning the positions of the two images so that structural components of the single subject substantially match *(see page 458, column 2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows)*;

wherein the inter image calculation means performs the inter image calculation between the two images which have been positionally aligned *(see page 454, column 1 and page 456, column 1-column 2, a previous chest image may be assumed nondistorted and is expressed by (x, y). Then the pixel value at (x+Δx, y+Δy) on the current image corresponds to the pixel value at (x, y) on the previous image. The "warping" (or rewrapping) of the current image is required for subtraction with the previous image (details of coordinate transformation in appendix) and a subtraction image is obtained by the difference between the wrapped current image and the previous image and figure 5(a)-5(d) illustrate a pair of original chest images without significant interval change, the warped image and the resulting subtraction image).*

Regarding claim 17, *Kano discloses* an image processing apparatus equipped with an inter image calculating means for performing inter image calculations to derive differences between two images of a single subject to obtain a difference image that represents the differences between the two images *(see page 454, column 1 and page*

456, column 1-column 2, a previous chest image may be assumed nondistorted and is expressed by (x, y). Then the pixel value at (x+Δx, y+Δy) on the current image corresponds to the pixel value at (x, y) on the previous image. The "warping" (or rewarping) of the current image is required for subtraction with the previous image (details of coordinate transformation in appendix) and a subtraction image is obtained by the difference between the wrapped current image and the previous image and figure 5(a)-5(d) illustrate a pair of original chest images without significant interval change, the warped image and the resulting subtraction image),

wherein: process confirmation data representing whether an image has undergone image processes is attached to each of the two images *(see page 454, column 2, a nonlinear density correction technique based on the H and D curve of the original radiographic films is applied a preprocessing)*, and

image processing condition data representing image processing conditions are further attached to the images which have undergone image processes *(see page 454, column 2, a nonlinear density correction technique based on the H and D curve of the original radiographic films is applied a preprocessing)*;

the image processing apparatus further comprising: a judgment means for judging whether the two images have undergone image processes, based on the process confirmation data attached to each of the two images *(see page 456, column 2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows.*

Approximately, 70% (32) of all the cases examined showed "reasonably" good matchings, indicating no apparent mismatch for normal anatomic structures); and

a correction means for correcting the difference image to be obtained by the inter image calculation in the case that at least one of the two images are judged to have undergone image processes, to obtain a difference image approximating that which would be obtained if the inter image calculation was performed employing the two images prior to the image processes, based on typical image processing conditions of the image processes administered to the at least one of the two images *(see page 454, column 1 and page 456, column 1-column 2, a previous chest image may be assumed nondistorted and is expressed by (x,y). Then the pixel value at (x+Δx, y+Δy) on the current image corresponds to the pixel value at (x, y) on the previous image. The "warping" (or rewarping) of the current image is required for subtraction with the previous image (details of coordinate transformation in appendix) and a subtraction image is obtained by the difference between the wrapped current image and the previous image and figure 5(a)-5(d) illustrate a pair of original chest images without* significant interval change, the warped image and the resulting subtraction image).

Regarding claim 19, *Kano discloses* an image processing apparatus as defined in claim 17, further comprising:

a positional alignment means for aligning the positions of the two images so that structural components of the single subject substantially match *(see page 458, column 2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows);*

wherein the inter image calculation means performs the inter image calculation between the two images which have been positionally aligned *(see page 454, column 1 and page 456, column 1-column 2, a previous chest image may be assumed nondistorted and is expressed by (x, y). Then the pixel value at (x+∆x, y+∆y) on the current image corresponds to the pixel value at (x, y) on the previous image. The "warping" (or rewarping) of the current image is required for subtraction with the previous image (details of coordinate transformation in appendix) and a subtraction image is obtained by the difference between the wrapped current image and the previous image and figure 5(a)-5(d) illustrate a pair of original chest images without significant interval change, the warped image and the resulting subtraction image).*

Regarding claim 20, *Kano discloses* an image processing apparatus as defined in claim 18, further comprising: a positional alignment means for aligning the positions of the two images so that structural components of the single subject substantially match *(see page 458, column 2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows).*

wherein the inter image calculation means performs the inter image calculation between the two images which have been positionally aligned *(see page 454, column 1 and page 456, column 1-column 2, a previous chest image may be assumed nondistorted and is expressed by (x, y). Then the pixel value at (x+∆x, y+∆y) on the current image corresponds to the pixel value at (x, y) on the previous image. The "warping" (or rewarping) of the current image is required for subtraction with the*

previous image (details of coordinate transformation in appendix) and a subtraction image is obtained by the difference between the wrapped current image and the previous image and figure 5(a)-5(d) illustrate a pair of original chest images without significant interval change, the warped image and the resulting subtraction image).

Regarding claim 21, *Kano discloses* an image processing apparatus as defined in claim 1, wherein the process confirmation data and image processing conditions are attached to each of the two images as parameters written into a header portion of each of the two images *(see page 454, column 1-column 2, a matrix size 2000x2000 and a 10 bit gray scale. The digitized images were subsampled to a 500x500 matrix with an effective pixel size of 0. 7x 0. 7 mm2, because abnormalities in chest images which are subjected to our subtraction study are generally very large, as will be demonstrated later. First, a nonlinear density correction is performed in order to adjust the density and contrast in the two digitized image profiles).*

Regarding claim 22, *Kano discloses* a method for deriving the differences between two images of a single subject to obtain a difference image that represents the differences between the two images *(see page 454, column 1 and page 456, column 1-column 2, a previous chest image may be assumed nondistorted and is expressed by (x,y). Then the pixel value at (x+Δx, y+Δy) on the current image corresponds to the pixel value at (x, y) on the previous image. The "warping" (or rewarping) of the current image is required for subtraction with the previous image (details of coordinate transformation in appendix) and a subtraction image is obtained by the difference between the wrapped current image and the previous image and figure 5(a)-5(d) illustrate a pair of*

original chest images without significant interval change, the warped image and the resulting subtraction image), the method comprising:

judging whether the two images have undergone image processing, based on process confirmation data attached to each of the two images *(see page 456, column 2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows. Approximately, 70% (32) of all the cases examined showed "reasonably" good matching, indicating no apparent mismatch for normal anatomic structures)*;

correcting an image which has been judged to have undergone image processing to correct the image to a state equivalent to its original state prior to the image processing, based on image processing condition data attached thereto *(see page 454, column 1 and page 456, column 1-column 2, a previous chest image may be assumed nondistorted and is expressed by (x, y). Then the pixel value at (x+Δx, y+Δy) on the current image corresponds to the pixel value at (x, y) on the previous image. The "warping" (or rewarping) of the current image is required for subtraction with the previous image (details of coordinate transformation in appendix) and a subtraction image is obtained by the difference between the wrapped current image and the previous image and figure 5(a)-5(d) illustrate a pair of original chest images without significant interval change, the warped image and the resulting subtraction image);* and

performing an inter image calculation employing the corrected image for the image which has been judged to have undergone image processing *(see page 456, column 2, subjective judgment of the matching/mismatch was based on the obviousness of*

mismatch artifacts which tend to show a pair of black and white shadows. Approximately, 70% (32) of all the cases examined showed "reasonably" good matching, indicating no apparent mismatch for normal anatomic structures);

wherein the process confirmation data represents whether an image has undergone image processing, and is attached to each of the two images, and the image processing condition data represents image processing conditions, and are further attached to the images which have undergone image processing *(see page 454, column 2, a nonlinear density correction technique based on the H and D curve of the original radiographic films is applied a preprocessing).*

Regarding claim 25, *Kano discloses* a method for deriving the differences between two images as defined in claim 22, wherein the performing inter image calculation comprises:

aligning the positions of the two images so that structural components of the single subject substantially match *(see page 458, column 2, subjective judgment of the matching/mismatching was based on the obviousness of mismatch artifacts which tend to show a pair of black and white shadows);*

wherein the inter image calculation is performed between the two images which have been positionally aligned *(see page 454, column 1 and page 456, column 1-column 2, a previous chest image may be assumed nondistorted and is expressed by (x, y). Then the pixel value at (x+Δx, y+Δy) on the current image corresponds to the pixel value at (x, y) on the previous image. The "warping" (or rewarping) of the current image is required for subtraction with the previous image (details of coordinate*

transformation in appendix) and a subtraction image is obtained by the difference between the wrapped current image and the previous image and figure 5(a)-5(d) illustrate a pair of original chest images without significant interval change, the warped image and the resulting subtraction image).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. *Claims 2, 3, 8,9 14, 18, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano, as applied to claims 1, 7, 13, 17 and 22, above in view of Yanagita et al., "Yanagita" (U.S. Patent number 6, 415, 049 B1).*

Kano discloses an image processing apparatus equipped with an inter image calculating means for performing inter image calculations to derive differences between two images of a single subject to obtain a difference image that represents the differences between the two images.

Kano does not disclose regarding claims 2, 8, 14, 18 and 23, an image processing apparatus and method as defined in claims 1,7, 13, 17 and 22, wherein: the image processes include a gradation process.

However, Yanagita discloses the image process include a gradation process *(see item 26, fig.4, fig.8c, 12 and 14c, and column 3, lines 1-8 and Column 17, lines 44- 47).*

It would have been obvious to someone of the ordinary skill in the art the time when the invention was made to use Yanagita's gradation process in Kano's Image processing apparatus and method equipped with an inter image calculating means for performing inter image calculations to derive differences between two images of a single subject to obtain a difference image that represents the differences between the two images because it will allow to correct the lowered sharpness, *[Yanagita's, see column 1, lines 37-38].*

Kano discloses an image processing apparatus equipped with an inter image calculating means for performing inter image calculations to derive differences between two images of a single subject to obtain a difference image that represents the differences between the two images.

Kano does not disclose regarding claims 3, 9 and 24, an image processing apparatus and method as defined as in claims 1,7 and 22, wherein: the image processes include a frequency process.

However, Yanagita discloses regarding claims 3, 9 and 24, an image processing apparatus and method as defined as in claims 1,7 and 22, wherein: the image processes include a frequency process *(see fig.8c and 14 and column 18, lines 16-20).*

It would have been obvious to someone of the ordinary skill in the art the time when the invention was made to use Yanagita's gradation process in Kano's Image processing apparatus and method because it will allow to correct the lowered sharpness, *[Yanagita's, see column 1, lines 37-38].*

Response to Arguments

6. Applicant's arguments field on 08/15/2008 have been respectfully considered, but they are not persuasive. Examiner disagreed with applicant because Kano discloses a judgment means for judging whether the two images have undergone image processes, based on the process confirmation data attached to each of the two images *(see fig.2, a set of template ROIs and search area ROIs for local matching and page 454, column 2, as applied preprocessing. With this technique, the "proper density distributions can be recovered from improperly exposed radiographs, and thus consistent density and contrast in temporally sequential chest images can be maintained. An exposure correction factor is estimated based on histogram analysis of a chest image)* and a correction means for correcting an image which has been judged to have undergone image processes, to correct the image to a state equivalent to its original state prior to the image processes, based on the image processing condition data attached thereto data *(see fig.2, a set of template ROIs and search area ROIs for local matching and page 454, column 2, a nonlinear density correction is performed in order to adjust the density and contrast in the two digitized images).* Examiner disagreed with applicant, for remaining claim limitations, for same or similar reasons.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AKLILU k. WOLDEMARIAM whose telephone number is (571)270-3247. The examiner can normally be reached on Monday-Thursday 6:30 a.m-5:00 p.m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

[SPE, Samir Ahmed. /
Examiner
Art Unit 2624

/A. k. W./
Examiner, Art Unit 2624
11/30/2008

/Brian Q Le/
Primary Examiner, Art Unit 2624